intelligent lighting controls

PARTIAL ON POWER PACK w/ STEPPED DIMMING (0-10V)

INSTALLATION & OPERATION INSTRUCTIONS

CATALOG NUMBERS	DESCRIPTIONS
ILC-SWX-900-AX-D2	POWER PACK WITH AUXILIARY SWITCH INPUT & STEPPED DIMMING OUTPUT (0-10V) - PARTIAL ON OPERATION
ILC-SWX-999	LOW VOLTAGE WIRING CHAMBER

OVERVIEW

Intelligent Lighting Controls partial-on power packs switch on/off power to the connected lighting load at the 50% bright level when signaled by an occupancy sensor. The unit will then raise lighting to the 100% level when its switch input is triggered. Lighting will turn off if another switch press is detected or when all connected sensors go to their unoccupied state. Additionally, the packs transform incoming line voltage power to Class 2 low voltage as needed by sensor(s) or low voltage switches.

FEATURES

- **Powers Low Voltage Sensors**
- **Switches Line Voltage Loads**
- **Electronically Timed Switching Ensures Long Relay Life**
- **Integrated Test/Programming Button**
- **Optional Snap-On Attachment Provides Chamber for Low Voltage Wire Connections**
- **Switch Input for Partial On, Manual On, Hold On, or Hold Off Operations**
- **0-10V Stepped Dimming Ouput for Partial On Operation**
- **Plenum Rated (UL 2043)**

SPECIFICATIONS

ELECTRICAL

OPERATING VOLTAGE
120/277 VAC

CLASS 2 OUTPUT RATINGS
18 VDC, 150 mA

RELAY CURRENT REQS
55 mA

LOAD RATINGS
20A @ 120 V -
General Purpose Plug Load

20A @ 120/277 VAC -
General Purpose, Tungsten, Magnetic Ballast

16A @ 120/277 VAC -
Electronic Ballast, LED Driver

DC LOAD RATINGS
20A @ 28 VDC (MAX)
1A @ 5 VDC (MIN)

DIMMING LOAD
(Models with -D2 option only)
50mA, (0-10 VDC ballasts or drivers compliant with IEC 60929 Annex E.2)

MOTOR LOAD
1 HP

ENVIRONMENTAL

OPERATING TEMP
-10°F to 122°F (14°C to 50°C)

RELATIVE HUMIDITY
0-95% Non-Condensing, Indoor Use Only

ROHS COMPLIANT

PHYSICAL

SIZE
3.00" H x 2.25" W x 1.88" D
(7.62 cm x 5.72 cm x 4.78 cm)

WEIGHT
6.00 oz.

COLOR
Blue

MOUNTING
1/2" Knockout

RELAY TEST BUTTON

LED STATUS INDICATOR
Bi-color White & Blue

c UL US LISTED

MADE IN THE USA

TAA COMPLIANT

BAA COMPLIANT

INSTALLATION INSTRUCTIONS

MOUNTING INSTRUCTIONS

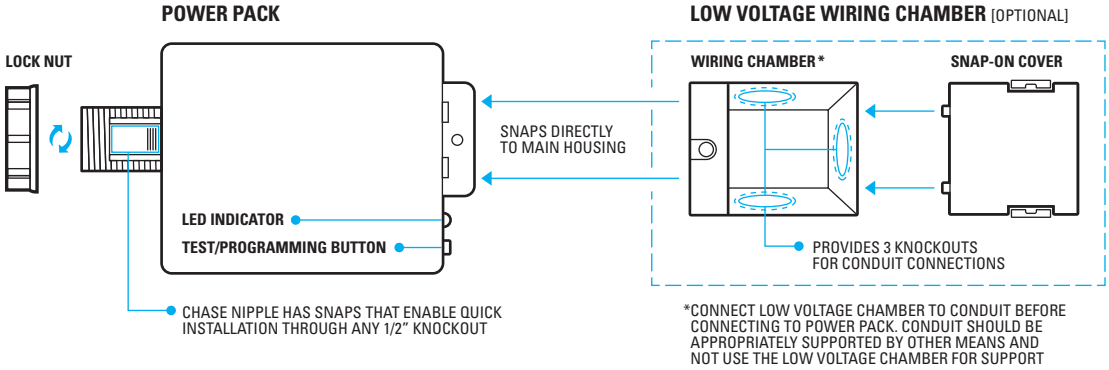
Power Packs are designed to attach to electrical enclosures with 1/2" knockouts.

INSTALLATION NOTES

1 For supply connections, use 14 AWG (90°C) or larger wires. Wire all circuits exiting chase nipple as Class 1 circuits.

2 Suitable for plenum use.

3 Risk of Electric Shock - More than one disconnect switch may be required to de-engergize the equipment before servicing.

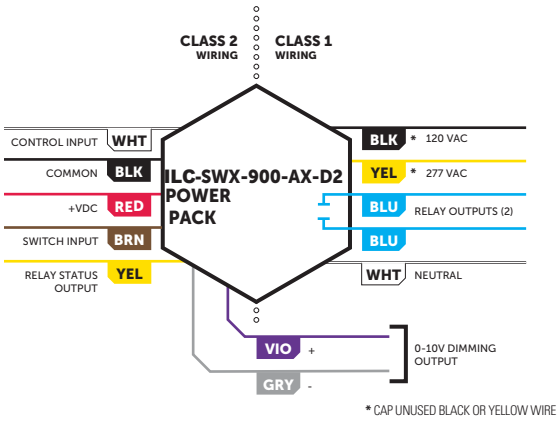


*CONNECT LOW VOLTAGE CHAMBER TO CONDUIT BEFORE CONNECTING TO POWER PACK. CONDUIT SHOULD BE APPROPRIATELY SUPPORTED BY OTHER MEANS AND NOT USE THE LOW VOLTAGE CHAMBER FOR SUPPORT

WARNING: TURN POWER OFF AT THE CIRCUIT BREAKER BEFORE WIRING

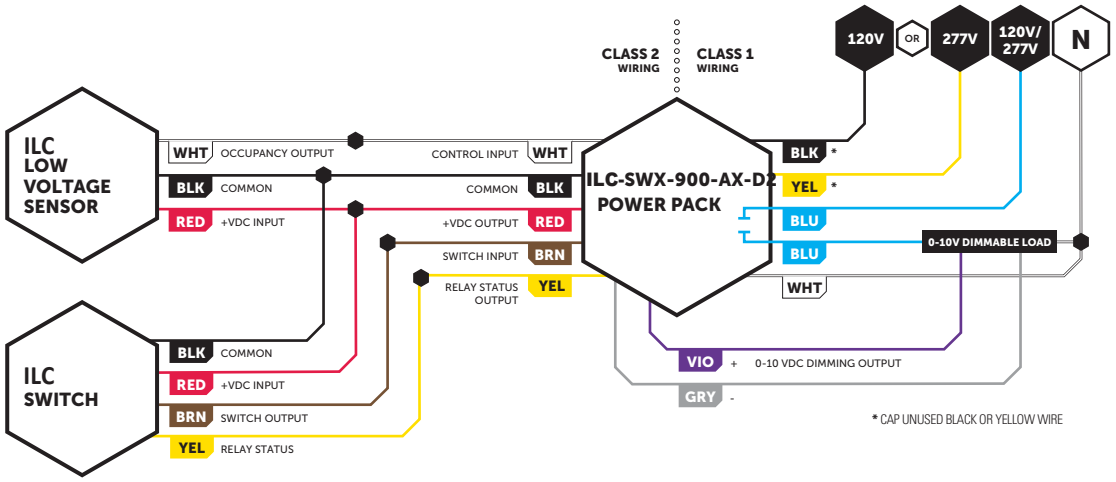
WIRING

BASIC WIRING



WIRING FOR PARTIAL ON OPERATION

- Some energy codes require **Partial On** operation which only allows lighting to automatically turn on to a 50% level. Once on, an occupant may raise lighting to a higher level. The sensor then ensures lights are turned off once the space is unoccupied.
- When initially triggered from an occupancy sensor or switch, the **ILC-SWX-900-AX-D2** unit will turn on connected 0-10V lighting to 50% (level is user configurable: TURN ON DIM LEVEL). The unit will then raise lighting to 100% (level is user configurable: HIGH TRIM) when its switch input is triggered. Lighting will turn off if another switch press is detected or when all connected sensors go to their unoccupied state.
- Additional configurable parameters include; Turn On Dim Level, Turn Off Scheme, Fade On/Fade Off Rates, and High/Low Dimming Trim Levels.
- Using the **ILC** model# **ILC-SWX-801-xx** momentary switch is recommended for this application, however other manufacturers switches may also be utilized.



POWER PACK CAPACITY

ILC-SWX-900 series power packs can supply power to several occupancy sensors and additional secondary relay packs. Following the below formula ensures adequate power will be available. Note the **ILC-SWX-900's** relay has already been factored into the formula.

[(# of PIR SENSORS**) x2] + [(#** of DUAL TECH SENSORS**) x10] + [(#** of **ILC-SWX-910) x55] < [(#** of **ILC-SWX-900) x95]**

EXAMPLE COMBINATIONS

PIR SENSORS			DUAL TECH SENSORS			SECONDARY PACKS ILC-SWX-910			TOTAL POWER REQUIRED		POWER SUPPLIED BY ONE ILC-SWX-900
#	POWER REQUIRED	+	#	POWER REQUIRED	+	#	POWER REQUIRED	=		<	
15	30mA	+	0	0	+	0	0	=	30mA	<	95mA
15	30mA	+	0	0	+	1	55mA	=	85mA	<	95mA
0	0	+	9	90mA	+	0	0	=	90mA	<	95mA
7	14mA	+	8	80mA	+	0	0	=	94mA	<	95mA

CONFIGURATION SETTINGS

OPERATIONAL MODES

This power pack by default has a Partial On sequence of operation. When initially triggered from an occupancy sensor or switch, the unit will turn on connected 0-10V lighting to the TURN ON DIM LEVEL (default 5V ~ 50%). The unit will then raise lighting to the HIGH TRIM LEVEL (default 10V~100%) when its switch input is triggered. Lighting will turn off if another switch press is detected or when all connected sensors go to their unoccupied state. The unit also offers a vacancy operational mode that requires an initial switch signal to initiate the partial on sequence.

SETTING #	MODE	DESCRIPTION
2	Auto-On / Full On / Auto Off Mode* (Partial On Occupancy Mode)	Lights come on automatically to the **TURN ON DIM LEVEL** (i.e. **PARTIAL ON POINT**) when an occupancy signal is received from connected sensors. A switch signal is required to step the dimming output to the full bright level (**HIGH TRIM LEVEL**). Lights can then be turned off manually via another switch signal. Lights will turn off automatically from either the partial on or full bright level if the connected sensors' time delays expire.
3	Manual On / Full On / Auto Off Mode (Stepped Vacancy Mode)	A switch signal is required to initially turn lights on to the **TURN ON DIM LEVEL** (i.e. **PARTIAL ON POINT**). A second switch signal is required to step the dimming output to the full bright level (**HIGH TRIM LEVEL**). Lights can then be turned off manually via a third switch signal. Lights will turn off automatically from either the partial on or full bright level if the connected sensors' time delays expire.
4	Disable Switch Input	Disables the auxiliary switch input (brown wire). Unit will operate in Auto On/Auto Off mode and will not utilize the TURN ON DIM LEVEL setting.

*Default Setting

TO CHANGE THE OPERATIONAL MODE

1 Read through the above list and note the number of the desired setting

2 Press and release the unit's pushbutton twice, then wait 2 seconds. The White LED will blink back the number of the current setting (e.g. 2 = Auto On / Auto Off).

3 Press the pushbutton the number times equal to the new desired setting (e.g. 3 = Manual On / Auto Off). The White LED will blink back the new setting as confirmation.

4 New setting is saved after White LED blinks confirmation 3 times. If Blue LED double flashes at any time, start process over.

LED OPERATION

To disable the LED from continuously flashing white as a "heartbeat", press and release the push-button 4 times, wait 2 seconds, then press and release the push-button 4 times again.

RELAY LOGIC

The power pack's relay closes in response to occupancy being detected. To reverse this logic (such that the relay opens in response to occupancy), press and release the push-button 5 times, wait 2 seconds, then press and release the push-button 3 times again.

ADDITIONAL OPERATION NOTES

When in Auto-on/Auto-off mode, if lights are manually switched off when there are still occupants in a space (to show a presentation for example), they will remain off until either switched back on manually or the sensor times out once the space is empty.

When in Manual On / Auto Off mode, if the switch is pressed but no occupancy is ever sensed, the lights will come on for 1 minute and then shut off.

DETAILED DIMMING CONFIGURATION

Several dimming parameters can be adjusted using the following programming procedure.

1 From the below tables of detailed dimming functions, note the number (#) of the function to be modified. For example, the HIGH TRIM setting is #7.

3 To access a particular function, press and release the programming button the number of time of the chosen function. For example, press the button 7 times to access the HIGH TRIM function.

4 The LED will flash back the setting number of the current value as it appears in each function's detailed table below. For example, the default HIGH TRIM is setting #2 (10V)

5 To change the setting number, press and release the button the number of times equal to the new setting #. For example, 3 times (for 9V).

6 The LED will flash back the new setting number as confirmation and will be saved after three confirmations. If Blue LED double flashes at any time, start process over.

CONFIGURATION SETTINGS (CONT.)

DETAILED DIMMING FUNCTION TABLES

FUNCTION #6 TURN ON DIM LEVEL (PARTIAL ON POINT)

The level the dimming output is set to upon initially turning on.

SETTING #	VALUES	NOTES
2	High Trim (~100%)	Light output at each voltage level depends on driver/ballast and luminaire.
3	7.5 VDC (~75%)	
4	5 VDC (~50%) (default)	
5	3 VDC (~30%)	

FUNCTION #7 HIGH TRIM

The voltage of the dimming output at the full bright level (step).

SETTING #	VALUES	NOTES
2	10 VDC (default)	Light output at each voltage level depends on driver/ballast and luminaire.
3	9 VDC	
4	8 VDC	
5	7 VDC	
6	6 VDC	
7	5 VDC	

FUNCTION #8 LOW TRIM

The voltage to which the dimming output will drop when the unit is in the off state. This setting is only active when the unit's **Turn Off Scheme** is set to Dim to Low Trim.

SETTING #	VALUES	NOTES
2	0 VDC	Light output at each voltage level depends on driver/ballast and luminaire.
3	1 VDC (default)	
4	2 VDC	
5	3 VDC	
6	4 VDC	
7	5 VDC	

FUNCTION #9 TURN OFF SCHEME

The actions of the power pack's dimming output and relay when an unoccupied signal or an off switch press is received.

SETTING #	VALUES	NOTES
2	Dim to Off	Dimming output fades to low trim and relay opens
3	Dim to 0	Dimming output fades to 0 volts (i.e. below a connected driver's electronic off level). Relay remains closed.
4	Dim to Low Trim	Dimming output fades down to low trim level. Relay remains closed.

FUNCTION #11 FADE OFF TIME

Adjustable time interval for lights to ramp down to off.

SETTING #	VALUES	NOTES
2	0.75 Sec	
3	1.5 Sec	Default
4	3 Sec	
5	5 Sec	
6	15 Sec	

FUNCTION #12 FADE ON TIME

Time interval for lights to ramp up to next dimming step when connected occupancy sensors signal an occupied state or when a low voltage switch is pressed.

SETTING #	VALUES	NOTES
2	0.75 Sec	
3	1.5 Sec	Default
4	3 Sec	
5	5 Sec	
6	15 Sec	

TESTING & TROUBLESHOOTING

TEST MODE

To test unit by toggling the relay, press and hold pushbutton. LED will turn blue while the button is held. Release button to return to normal operation.

LED INDICATION

During normal operation, the LED flashes white as a status "heartbeat". If the LED repeatedly double flashes blue, the power supply is overloaded. This is probably due to having too many sensors or secondary relay packs connected. Remove excess low voltage load from the red wire until blinking stops.

RESET

To restore factory settings, press and release the push-button 3 times, wait 2 seconds, then press and release the push-button 3 times again.

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